What is claimed is:

1. A manufacturing method for an optical fiber grating comprising the steps of:

forming a grating part having a periodic refractive index distribution by irradiating an optical fiber along the longitudinal direction by ultraviolet light at a predetermined period and carrying out dehydrogenation when necessary;

carrying out at least one time uniform ultraviolet irradiation processing that irradiates the grating part as a whole with ultraviolet light; and

carrying out heat aging in order to stabilize the optical properties of the grating part.

2. A manufacturing method for an optical fiber grating according to claim 1 wherein, before or after said uniform ultraviolet irradiation processing, heat trimming processing is carried out at least one time by heating the grating as a whole in order to adjust the optical properties.

3. A manufacturing method for an optical fiber grating according to claim 1, wherein said uniform ultraviolet irradiation processing and said heat trimming processing are repeatedly carried out at an arbitrary number of times and in an arbitrary sequence.

4. A manufacturing method for an optical fiber grating according to claim 1, wherein said uniform ultraviolet irradiation processing and said heat trimming processing are carried out while monitoring the transmitted light, the reflected light, and the reference light of the optical fiber.

5. An optical fiber grating comprising a grating part having a periodic refractive index distribution due to irradiation of the optical fiber along the longitudinal direction by ultraviolet light at a predetermined period and a sample fiber having a constant refractive index, wherein the minimum refractive index of said grating part is larger than the refractive index of said sample fiber, and the variation of the smallest refractive index of said grating part is sufficiently smaller than the amount of change in the periodic refractive index.

6. A manufacturing apparatus for an optical fiber grating providing an ultraviolet irradiating apparatus and a heating apparatus for adjusting the optical properties of the optical fiber grating.

7. A manufacturing apparatus for an optical fiber grating according to claim 6 wherein a mechanism that implements said uniform ultraviolet irradiation processing and said heat trimming processing maintains a constant tension on the optical fiber.